REMARKS

Applicant respectfully requests reconsideration. Claims 1-8, 17-35, 37 and 38 were previously pending in this application. Claims 1 and 38 have been amended. No claims have been added and none have been canceled. As a result, claims 1-8, 17-35, 37 and 38 are pending for examination with claims 1, 17, 31, 35 and 38 being independent claims. No new matter has been added.

Claim Rejections under 35 USC §101

The Office Action continues to reject claim 38 as non-statutory. Reconsideration is requested as the Examiner's legal analysis is flawed. It is unsupported by case law and the statute, and inconsistent with the treatment accorded the claims in *In re Nuitjen*. Indeed, it is inconsistent with the Office's own guidelines, as a result of which the rejection amounts to arbitrary and capricious agency action.

The Office Action states that "transmitting an electronic signal" is not permitted under MPEP 2106.01 when the claim is drawn to a computer program/program instructions per se. Office Action at 2. This is wrong on three counts:

First, the cited MPEP section, which cites to *In re Nuitjen* for authority, states only that a "signal" is non-statutory subject matter, as that was essentially the holding in *Nuitjen*. That point, however, is irrelevant. Applicant does not claim a signal. Claim 38 claims a method which comprises the transmission of a signal. The method and the resulting signal that are transmitted are two different things, as the Federal Circuit expressly recognized in Nuitjen. That court clearly stated in *In re Nuitjen* that its holding pertained to claiming a signal per se, not to a method or apparatus for transmitting a signal. The Examiner is requested to re-read the decision and to read the MPEP section once more, as she has misunderstood it. One need only read the claim to see that it is directed to a statutory method. Rejected claim 38 reads:

38. (Currently amended) A *method* comprising *transmitting* an electromagnetic signal which delivers therein program instructions ~~usable~~ to cause a computer to perform a method of claim 1 when executed by the computer.

Emphasis added.

Second, the Office Action next states that when *non-functional* descriptive material is recorded on an electromagnetic signal, it is not statutory. Applicant does not challenge this assertion, but, rather, points out that it is irrelevant and inapposite – that is, it does not apply to the facts here. The material conveyed in the signal transmitted by the claimed method is *functional* material - i.e., instructions that cause a computer to perform the method of claim 1. Thus the proposition cited by the Examiner simply does not support a rejection.

Third, the rejection asserts that the "usable to cause" language in claim 38 does not implement any action. Here, the Examiner overlooks entirely the nature of the claimed subject matter. The claim is to a method, the method of transmitting. The "usable" language merely defines the functional attribute of the information which is transmitted. However, to advance prosecution, the word "usable" has been deleted, mooting the Examiner's reasoning. The claim now requires transmission of instructions which cause a computer to perform a method of claim 1. In turn, the method of claim 1 requires, *inter alia*, "scaling an output value of [a] ... circuit to a desired output value at a first temperature; and matching said output value, at a second temperature, to said desired output value."

Claim 1, and therefore claim 38, meets both the particular "machine" and the "transformation" prongs of the test now enunciated in *In re Bilski*.

Thus, the MPEP and case law quotations and the Office's analysis of claim 38 are quite off-target and do not support a rejection of the claimed invention for lack of statutory subject matter. Accordingly, the rejection of claim 38 should be withdrawn.

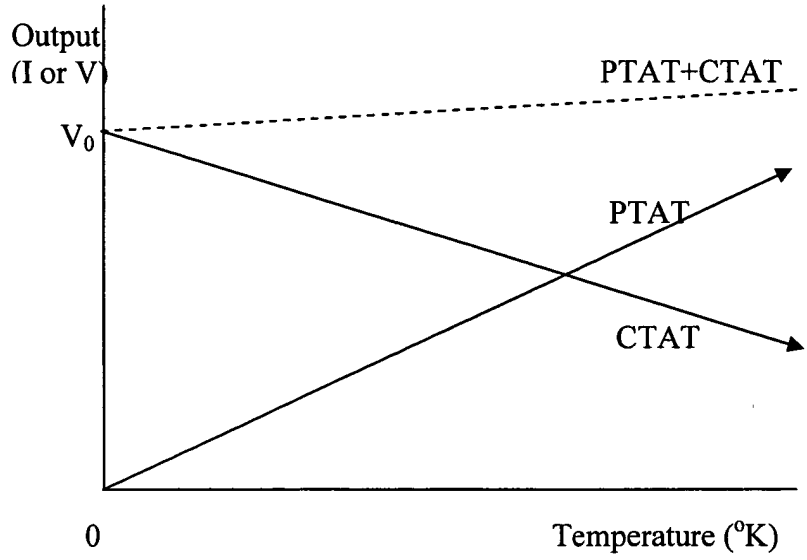
Claim Rejections under 35 USC §102

Claims 1-8, 17-35 and 37 were rejected under 35 USC §102(b) as purportedly anticipated by Nolan et al '161. Reconsideration is requested as the Examiner appears to have misconstrued either Nolan or the claim limitations. Indeed, the subject matter of claim 1 differs from Nolan in

a number of respects that the Examiner has not credited. Applicant suspects that the Examiner's reading of Nolan is tainted by knowledge of the invention Applicant has made and the Examiner does not realize she therefore is reading into Nolan something it never discloses.

While it is true that Nolan discusses calibration using PTAT and CTAT signals to balance out each other's contribution to temperature dependency, that is about as close as it comes to the claimed invention, which is narrowly limited to a quite specific method (and corresponding apparatus). Guided by Applicant's disclosure, the Examiner reads into Nolan disclosure details which are not there. Nolan simply does not show all the limitation of the rejected claims.

Tellingly, and contrary to the Office Action, Nolan does not disclose "altering the temperature of the circuit from the first temperature to a second temperature and correcting said output value at the second temperature to match said desired output value . . .*such that the correction which is to provide [the] desired output value at the second temperature does not change the output value at the first temperature."* (Emphasis added.) While the Office Action cites to portions of Nolan to support such a feature, it will be seen upon closer inspection that, in fact, such limitation is not disclosed. Rather, the cited portions (column 3, lines 11-14 and 50-58; column 4, lines 63-67 and column 5, lines 1-5) only discuss two different, conventional methods of trimming the output voltage value to provide temperature compensation: (1) the independent current method and (2) the variable ratio method. These methods, as previously explained, are based on different adjustments of PTAT and CTAT currents than are specified in the claims. They may be understood from the following diagram:



One signal, CTAT, provides a raw value which has no temperature compensation. This is typically derived from a P-N semiconductor junction. It has a particular value, V_0, when the temperature is zero in absolute degrees Kelvin. This value is set by the physics of the process, and therefore cannot be adjusted by circuit techniques. This raw value of the CTAT signal typically has a negative slope as temperature is raised (i.e., it is complementary to absolute temperature, as its name indicates). Compensation for this negative slope typically is obtained by adding to it another signal of positive slope (i.e., a PTAT signal), to yield a result (the dashed line labeled PTAT+CTAT) which has a much flatter slope variation with temperature, as shown above. The PTAT signal is generally derived from a pair of P-N junctions with appropriate bias and/or size conditions to create the PTAT effect. *The value at 0°K is zero, as demanded by the mathematics of the relevant equations, and so cannot be adjusted by circuit techniques.*

A desired goal is to calibrate the resultant sum, PTAT+CTAT, to achieve a desired output which is constant over temperature. However, since only the slopes of the two curves can be adjusted (and not their offsets), *in the classic schemes discussed in Nolan it is not possible to achieve both a desired output value AND a flat temperature characteristic.* Either or both of the

CTAT and PTAT slopes can be adjusted at one temperature to get, for example, a desired output value, but to make this value flat over a range of temperatures requires a second change to either or both PTAT or CTAT signals. *However, in making this second adjustment, the value originally set is* ***disturbed.***

At most, one can improve the degree of flatness and the desired output value by repeatedly and iteratively making adjustments.

This is a fundamental problem of the known state of the art in CTAT/PTAT temperature compensation, including the schemes described in Nolan et al. The present invention, as claimed, overcomes this problem and hence is novel.

More expansively, the independent current method involves setting the CTAT current to a pre-determined value at a nominal temperature and the PTAT current to zero, or vice versa. By contrast with the method specified in claim 1, calibration is performed at only a single, nominal operating temperature, and operations are not performed at the claimed first **and second** temperatures. Thus, there is no scaling of an output value of the circuit to a desired output value at a first temperature, and (1) altering the temperature of the circuit to a second temperature and (2) correcting the output value at the second temperature to match the desired output value while not disturbing the corrected value at the first temperature.

The Examiner asserts on page 10 of the Office Action that Nolan, by contrast, discloses taking current measurements at two distinct temperature s. Applicant agrees! However, the Examiner does **not** show, as she cannot, that Nolan teaches altering the temperature from a first temperature to a second temperature and correcting the output at the second temperature without disturbing the already corrected value at the first temperature. Nolan's calibration at his second temperature changes the output at the first temperature, causing it to go out of calibration!

In short, the Examiner is either failing to appreciate what Applicant's claims say, despite correctly repeating Applicant's argument, or the Examiner simply does not understand the shortcomings of Nolan.

While it may be possible, using Nolan's technique, to converge closely to the calibration provided by the claimed invention, to do so requires multiple iterations of calibrating at the first temperature, then the second, and now, back to the first, because the calibration at the first

temperature likely will have changed by then due to the impact of making a calibration at the second temperature, and so on. The claimed invention, by contrast, avoids such a slow, iterative process.

The variable ratio method is another method Nolan discusses. It involves computing the temperature coefficients for the PTAT and CTAT current generators by taking current measurements at two distinct temperatures for each device. This method is quite similar to the prior art techniques discussed in the background section of the present application. However, Nolan does not disclose or suggest the claimed invention because there is *no disclosure* in Nolan that during this variable ratio calibration technique, when the temperature of the circuit is altered from a first to a second temperature, and the output value of the reference voltage is corrected to match the desired reference voltage (by modifying the PTAT and/or CTAT currents), *that correction to provide the desired reference voltage at the second temperature* ***does not change*** *the output value at the first temperature. Indeed, it does!* Consequently, disclosure of the variable ratio method does not anticipate the subject matter of claim 1, either.

Claims 2-8 all depend directly or indirectly from claim 1 and are accordingly novel for the same reasons.

Claim 17 is an apparatus claim including means for performing the above-described operations of claim 1 and thus distinguishes over Nolan for the same reasons. Claims 18-30 all depend directly or indirectly from claim 1 and are similarly allowable. Claim 31 is another independent apparatus claim. It specifies a circuit having a digital control means for digitally scaling an output voltage at a first temperature and for digitally matching the output voltage, as second temperature, to a desired output voltage value, such that the desired output value at the first temperature remains unchanged. Consequently, from the discussion above relative to claim 1, it will be clear that claim 31 also distinguishes over Nolan. Claims 32-34 depend directly or indirectly from claim 31 and similarly distinguish over the reference. Claim 35 is a computer program product claim specifying, *inter alia*, instructions for causing a computer to perform the method of claim 1, so it is likewise distinguished over Nolan. Further, claim 37 depends from claim 35 and is similarly allowable.

The amendment to claim 1 is for grammatical clarification, only.

Accordingly, the rejection of claims 1-8, 17-35 and 37 as anticipated by Nolan et al should be withdrawn.

Claim Rejections under 35 U.S.C. §103

Claims 20-22, 25, 27-29 and 32-34 have been rejected under 35 U.S.C. §103(a) as purportedly being unpatentable over Nolan et al, as applied above, in view of Dauphinee et al. However, all of these claims depend directly or indirectly from the above-discussed independent claims, which are not anticipated by Nolan et al. Notably, Dauphinee is not cited for a disclosure of the limitations not found in Nolan pursuant to the above discussion. From an inspection of Dauphinee, it also appears to lack those features. Consequently, no combination of Nolan and Dauphinee can negate the patentability of the independent claims from which these rejected claims depend. It therefore serves no further purpose to delve more deeply into the specific limitations of these dependent claims. Though the dependent claims are not further discussed, for the avoidance of doubt Applicants expressly state that they do not concede that the references show any of the limitations of the dependent claims for which the Examiner has cited them, and thus reserve the right to later argue, if necessary, the specific patentability of each and any of the dependent claims.

Accordingly, the rejection of claims 20-22, 25, 27-29 and 32-34 should be withdrawn.

CONCLUSION

A Notice of Allowance is respectfully requested. If for any reason the Examiner does not agree that a Notice of Allowance is justified, Applicant requests an interview with the Examiner and her supervisor before the issuance of a next Office Action. Thus, the Examiner is requested to call the undersigned at the telephone number listed below if this communication does not place the case in condition for allowance.

If this response is not considered timely filed and if a request for an extension of time is otherwise absent, Applicant hereby requests any necessary extension of time. If there is a fee occasioned by this response, including an extension fee, that is not covered by an enclosed check, please charge any deficiency to Deposit Account No. 23/2825.

Respectfully submitted,

By: William R. McClellan

William R. McClellan, Reg. No. 29,409
Wolf, Greenfield & Sacks, P.C.
600 Atlantic Avenue
Boston, Massachusetts 02210-2206
(617) 646-8000

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